

REMARKS

Reconsideration is respectfully requested.

The specification has been amended at page 3 to more clearly set forth in explanation of the remaining text in the paragraph on page 3, lines 5-10. Additional antecedent basis is found at page 4, lines 5-8. No new matter is added.

Claims 19, 21, 22, 24, 33 and 34 have been amended to provide a more precise and concise recitation of the elements of the subject matter which Applicants claim as their invention and to address the rejections made under 35 U.S.C. §112, first and second paragraphs. For example, no new matter is added, and support for these amendments is found at Page 6 of the specification as originally filed.

With respect to the objection to the specification because of the insertion into Claim 3 of the word "non-periodic", Applicants rely on the originally filed text at page 8, lines 29-30 for antecedent basis. Nevertheless, to remove this issue from further contention, Applicants have deleted the term from Claim 3.

Applicants respectfully suggest that the disclosure does provide sufficient information as to be enabling to a person who is skilled in this art to practice the invention.

The specification discloses that "the particular shade of ... grey generated by a light scattering region is dependent upon the number of scattering centres and feature sizes of those scattering centres within a given surface area" (page 2, lines 27-29) and "the grey scale region structure types may be developed by selecting a limited number of diffuse scattering structures, each of which has different scattering characteristics" (page 5, lines 28-30). Also that "the diffusion characteristics and grey scale value can be altered by altering such features as depth of

the surface relief structure, sharpness of the surface relief structure profile, and introduction ... of random "noise" structures by varying the number of scattering centres and feature sizes of the scattering centres within the region" (page 6, lines 7-12). It is also disclosed that the structures can be formed via an electron beam writing device (page 6, line 31) i.e. engraving by an electron beam lithography process (page 7, lines 12-13). These disclosures are in the overall context of the generation of an optically non-variable image (hence diffuse non-diffracting scattering of light is required) which is made up of different grey scale areas (thus each area must have different scattering structures). It is respectfully submitted that to a person who is skilled in this art, it would be very plainly understood that the "physical characteristics" are the particular shapes, etc., of the surface relief structures of a grey scale region that give a particular shade of grey and that different types of structures may be provided to that end (see page 5 lines 28-30). We submit that it is well within the level of knowledge and skill of the ordinary skilled person what such physical characteristics of the relief structures may comprise and how they may be provided. Clearly different such relief structure types can be provided and it would also be very plain to the skilled person that the "predefined group of ... structure types" is simply a number of structure types that she/he may select for a particular device. Therefore it is respectfully submitted that the rejection of Claims 19-23, 26, and 28-32 is not supported by the statement and questions found in the Office Action in view of the above comments.

The Office Action indicated that the specification failed to teach adequately "specific working examples or operable examples of the 'functions'." The specification failed to disclose what is "consumed" to be the "different grey scale region structure types" (claim 19) and the "micrographic region structure types" (Claim 24).

Claim 19 has been amended by inserting the wording "and which together are for generating a macroscopic graphic, line art or text image" to describe the grey scale regions and by specifying that the structure of each grey scale region is selected from a predefined group of different non-diffracting grey scale region structure types ("whereby the grey scale regions generate the macroscopic graphic, line art or text image composed of different grey scales"). Claim 24 has been amended to recite that the "non-diffracting grey scale regions with diffuse scattering characteristics [is] for generating a macroscopic graphic, line art or text image" to insert the wording "whereby the observer observes the macroscopic graphic, line art or text image composed of different grey scales," previously recited in Claim 27, now cancelled.

Claims 19 to 36 have been rejected as being are unpatentable over the present Applicant's US Patent 5,825,547 (*Lee et al.*) in view of *Boisser et al.* (U.S. Pat. No. 4,790,566). Both of these prior US patents relate exclusively to optically variable images. The independent claims of the present application, Claims 19, 24 and 33, recite subject matter drawn exclusively to optically invariable images. As an observer moves around one of the devices disclosed in US Patent No. 5,825,547 (and also in No. 5,428,479), any given surface region will appear bright, then dark, then bright, then dark, as the viewing angle is changed. This is "optical variability". In the present application, on the other hand, each of the independent claims recite that the intensity of a region remains the same when viewed from any direction. This is "optical invariability". The independent claims of the present application have been previously amended to clarify this further, by specifying that the grey scale regions are "non-diffracting".

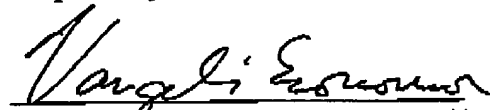
Amendments have been made to the base claims 19, 24 and 33 to restrict the claimed invention to the provision of a device which generates an optically non-variable macroscopic image composed of different grey scale areas. This is quite different to what is disclosed by *Lee*

(US Patent No. 5,825,547) wherein the diffusely reflecting regions merely provide a neutral background appearance to a diffractive device, making the diffraction images more easily observable (col. 9, lines 26-31). There is no disclosure in *Lee '547* of providing a device which provides an optically non-variable image made up of surface relief structures which impart different shades of grey to different areas of the image, and which is therefore advantageously useful as a security device as it simulates an optically invariable "printed" appearance which is not capable of being copied by holographic techniques (see specification page 2, lines 24-26). *Lee '547* does not disclose that the diffusely reflecting regions may be such as to define a specific image or that the image may be composed of different grey shade areas. Thus, in view of the amendments to the base claims, it is respectfully submitted that *Lee '547* is not applicable as it does not teach the provision of a device such as is now claimed.

It is further respectfully submitted that *Boissier et al.* (US 4,790,566) cannot be properly combined with *Lee '547*. In this respect, it is noted that *Boissier et al.* does not appear to relate to an optical device having a surface relief structure, but is drawn merely to a printed identity document. Furthermore, there is a lack of any teaching that these two types of devices, different from each other, can or should be modified in their teachings.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections and earnestly solicit an indication of allowable subject matter.

Respectfully submitted,



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July 30, 2003

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JUL 30 2003

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